

One preferred embodiment of the invention is described below

Embodiment of the Invention

5 For wrapping an electrical conductor with a rectangular profile, three insulating tapes were produced. These insulating tapes each contained as the supporting body a glass silk fabric of varied structure and a mica paper cemented to the fabric with a weight per
10 unit area of 180 g/m². These three insulating tapes were each cut out from roughly 1 m wide insulating tape webs in a width of roughly 25 mm in the warp direction (direction of winding). Then the tensile strength, the edge tear initiation strength (tear strength of a insulating tape which is supported on this edge and which is guided obliquely to one edge of the conductor) and the
15 porosity (after Gurley Hill) were determined on these three insulating tapes. These quantities are important in the wrapping of an electrical conductor and in the impregnation of the wrapped conductor with impregnation resin. The structures of the glass silk fabrics which belong to the three insulating tapes and the
20 aforementioned properties of the three tapes are summarized in the following table.

Insulating tape		1 (Prior art)	2 (Prior art)	3 Invention
Weight per unit area,	g/cm ²	23	33	24
Warp thread weight,	tex	5.5	11	11
Woof thread weight,	tex	5.5	5.5	5.5
Thread density, warp threads,	per cm	27	24	16
Thread density, woof threads,	per cm	15	11	10
Tensile strength in warp direction,	N/cm	80	140	104
Edge tear initiation strength,	N	8	16	8
Porosity, glass side,	s/100 ml	100	180	100

It is clear from this table that in contrast to the insulating tapes 1 and 2 which are considered prior art, in insulating tape 3 the warp threads are formed by a coarse yarn and have a low thread density. This yields a coarse-mesh fabric with a weight per unit area which corresponds to the weight per unit area of the fine-mesh fabric according to insulating tape 1 which contains warp and woof threads of finer yarn. In contrast to this fabric, the fabric of the insulating tape however has an edge tear initiation strength which is twice as high. The fabric of the insulating tape 2 has a comparatively high edge tear initiation strength, but it is much heavier so that insulation produced using it has a much lower dielectric strength than the correspondingly made insulation from the insulating tape 3.

To avoid an overly large weight per unit area and an overly great thickness of the fabric with high edge tear initiation strength, it

is recommended that predominantly yarns be used with a thread weight which is acts roughly like 2 to 1. At a weight per unit area of the fabric between 20 and 28 g/cm² the thread density of the warp threads should be 10 to 20 threads per cm. The insulating tape 3 can then be exposed to an edge tear initiation force between 12 and 18 N.

Commercial applicability

As can be taken from the table, the insulating tape 3 has a porosity almost twice as high as that of the insulating tape 2 which is considered prior art and which is comparable in terms of weight per unit area. Therefore, in the production of an insulated conductor after wrapping the conductor it can be impregnated very quickly with impregnation resin and in this way the production time can be greatly reduced.

The insulating tape as claimed in the invention furthermore has a low proportion of fabric and thus good dielectric properties with simultaneously high edge tear initiation resistance. Accordingly the electrical conductors can be wrapped with high winding speeds using the insulating tape as claimed in the invention.